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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,580	08/26/2003	George A. Dunn	16869G-084700US	5971

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EXAMINER

NEGRON, DANIEL L

ART UNIT

PAPER NUMBER

2651

DATE MAILED: 12/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/649,580	Applicant(s) DUNN, GEORGE A.	
	Examiner Daniell L. Negrón	Art Unit 2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6,8,9,11,13,15,16 and 18 is/are rejected.
- 7) ☒ Claim(s) 3,5,7,10,12,14,17,19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>26 August 2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on August 26, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

2. Claim 3 is objected to because of the following informalities: on line 2, the recitation "...the second pattern..." lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4, 6, 8, 11, 13, 15, 16, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Christiansen et al U.S. Patent No. 6,369,969.

Regarding claim 1, Christiansen et al disclose controller circuitry that detects polarity reversals in a read/write head (20) of a disk drive system (16) comprising decoding circuitry (34) for decoding a direction signal (i.e. polarity signal) to provide a decoded signal, wherein the direction signal is generated by the read/write head (20) in response to reading a directional pattern stored on a data track of a magnetic disk (18) (column 3, lines 12-26).

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Christiansen et al further disclose comparing circuitry (86A, 86B) for determining if the decoded signal matches a first pattern (i.e. threshold) that indicates whether the read/write head (20) has reversed polarity (column 5, lines 1-13).

Regarding claim 4, Christiansen et al disclose controller circuitry wherein the decoding circuitry (34) includes an amplifier that amplifies differential read signals from the read/write head (20) to generate an amplified read signal, a buffer (i.e. shift register, elements 54 and 62) that converts the amplified read signal into differential digital signals, and an exclusive OR (i.e. XOR) gate (52, 60, 79) that is coupled to receive the differential digital signals (see Figs. 3A and 3B and disclosure thereof).

Furthermore, the amplifier, although not explicitly discussed in the reference is considered inherent since in a conventional disk drive, amplifiers are required to boost a signal read from a magnetic disk in order to place the signal in condition for decoding.

Regarding claim 6, Christiansen et al disclose controller circuitry wherein the direction patterns are written in regions of the data track that precede each servo sample (see Fig. 1 and column 1, lines 54-67).

Furthermore, Christiansen et al disclose in Fig. 1 and on column 1, lines 54-67 that directional (i.e. polarity) signals are generated from reading sync marks which are located on a track preceding the servo area, therefore it is considered that the limitations are met by the reference.

Regarding claims 8, 11, 13, 15, 16, and 18, claims 8, 11, 13, 15, 16 and 18 have limitations similar to those treated in the above rejections of claims 1, 4, and 6, and are met by the reference as discussed above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christiansen et al U.S. Patent No. 6,369,969

Regarding claim 2, Christiansen et al disclose controller circuitry that detects polarity reversals in a read/write head (20) of a disk drive system (16) with all the limitations of claim 1 but fail to show however the specifics of a plurality of AND gates used for the purpose of comparing a first pattern to a decoded signal.

However, Christiansen et al does disclose a plurality of comparators (86A and 86B) which compare a threshold as discussed above but fail to show controller circuitry wherein the comparing circuitry includes a digital first pattern (i.e. threshold) with a digital decoded signal for the purpose of detecting polarity reversals in a signal read from a disk (column 4, line 66 through column 5, line 13).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a plurality of AND gates for the purpose disclosed by Christiansen et al since it is considered an equivalent component, *In re Ruff*, 256 F.2d 590, 118 USPQ 340 (CCPA 1958).

Regarding claim 9, has limitations similar to those treated in the above rejection of claim 2, and are met by the reference as discussed above.

Allowable Subject Matter

7. Claims 3, 5, 7, 10, 12, 14, 17, 19, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 3 and 17, prior art fails to show controller circuitry controller circuitry that detects polarity reversals in a read/write head of a disk drive system wherein a tolerance between the first pattern and the second pattern is 8 bits.

Regarding claims 5, 12, and 19, prior art fails to show controller circuitry controller circuitry that detects polarity reversals in a read/write head of a disk drive system wherein the exclusive OR gate performs an exclusive OR function on a first one of the differential digital signals generated in a current clock cycle and a second one of the differential digital signals generated in a previous clock cycle.

Regarding claims 7, 14, and 20, prior art fails to show controller circuitry controller circuitry that detects polarity reversals in a read/write head of a disk drive system wherein the first pattern is 11011.

Regarding claim 10, prior art fails to show a disk drive system for reading magnetic recording media comprising decoder circuitry for decoding the read signal to generate a decoded read signal and comparing the decoded read signal to a pattern to determine if the read/write head has reversed polarity wherein the decoder circuitry includes a shift register coupled to inputs of the AND gates.


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniell L. Negrón whose telephone number is 703-305-6985. The examiner can normally be reached on Monday-Friday (8:30-6:00) Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh N. Tran can be reached on 703-305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DLN 
November 17, 2004


SINH TRAN
PRIMARY EXAMINER

~~EXAMINER~~
~~PAIR~~